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ABSTRACT

The course outline has been prepared as a guide to help the student develop the skills and knowledge necessary to succeed in the field of data processing. By learning the purpose and principles of compiler programs and operating systems, the student will become familiar with advanced data processing procedures that are representative of computer installations in the business community. The student will become familiar with other programing languages and will learn the Cobol programing language. A prerequisite to this course is Advanced Programing Techniques. The course consists of 90 clock hours and is made up of five blocks of instruction (orientation, compiler programs, operating systems, Cobol, and Quinmester posttests) which are further broken down into several units each. Also included are course goals, specific block objectives, a course outline, a 12-item bibliography, and an appendix of Quinmester posttests and answer key. (Author/BP)

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AUTHORIZED COURSE OF INSTRUCTION FOR THE QUINMESTER PROGRAM

V-14

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Course Outline
DATA PROCESSING TECHNOLOGY - 8025
(Software Systems II - Compiler and Operating Systems Lab - Advanced)
Department 73 - Quin 8025.33

CE 001 949

DADE COUNTY PUBLIC SCHOOLS
DIVISION OF INSTRUCTION • 1973

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DADE COUNTY PUBLIC SCHOOLS
1450 NORTHEAST SECOND AVENUE
MIAMI, FLORIDA 33132

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Department 73 - Quin 8025.33

county office of

VOCATIONAL AND ADULT EDUCATION

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Dade County Public Schools
Miami, Florida 33132

December, 1972

Published by the School Board of Dade County

Course Description

8025	73	8025.33	Software Systems II - Compiler and Operating Systems Lab - Advanced
State Category Number	County Dept. Number	County Course Number	Course Title

The students will learn the purposes and principles of compiler programs and operating systems. Students will become familiar with other programming languages. The students will develop Cobol language programs. Operating procedures will be studies with the emphasis on operator responsibility in following instructions.

Indicators of Success: The student must have met the objectives of Advanced Programming Techniques Lab I prior to enrollment in this course.

Clock Hours: 90

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PREFACE

The following course outline has been prepared as a guide to help the student develop the skills and knowledge necessary to succeed in the field of data processing. Problems are presented to the student to allow him to apply techniques already learned and to increase his knowledge of ways to solve processing problems.

By learning the purpose and principles of compiler programs and operating systems, the student will become familiar with advanced data processing procedures that are representative of computer installations in the business community. The student will become familiar with other programming languages and will learn the Cobol programming language.

In presenting the material outlined in this course, the instructor uses lectures, presentations, student participation, demonstrations, and student projects as methods of instruction. After instruction and practice on the application that has been studied, evaluation of the student's skill and understanding is made.

This elective course is one of a series designed for quinmester use. Students who have met the objectives of Advanced Programming Techniques Lab I should be admitted to this course.

The class meets two hours per day for 90 clock hours. The outline lists the information the student must learn. It is made up of five blocks of instruction which are further broken down into several units each.

This outline was developed through the cooperative efforts of the instructional and supervisory personnel, the Quinmester Advisory Committee, and the Vocational Curriculum Materials Service, and has been approved by the Dade County Vocational Curriculum Committee.

TABLE OF CONTENTS
with Suggested Hourly Breakdown

	Page
PREFACE	i
GOALS	iii
SPECIFIC BLOCK OBJECTIVES	iv
BIBLIOGRAPHY	3
BLOCK	
I. ORIENTATION (2 Hours)	
Objectives of the Course	1
Student Responsibilities	1
Student Benefits	1
II. COMPILER PROGRAMS (15 Hours)	
Functional Description of Compilers	1
The Coding Form	1
Operating Procedures	1
III. OPERATING SYSTEMS (15 Hours)	
Functional Description of Operating Systems	1
Operating System Sections	1
IV. COBOL (58 Hours)	
Introduction	2
Cobol Divisions	2
Language Elements of Cobol	2
Cobol Coding Form	2
V. QUINMESTER POST-TEST	
APPENDIX: QUINMESTER POST-TEST SAMPLE	4

GOALS

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The student must be able to demonstrate:

1. The ability to follow proper operating procedures.
2. The ability to interpret written instructions.
3. An understanding of the need for proper documentation when preparing programs.
4. The ability to develop logical solutions to programming problems.
5. A knowledge and understanding of various terms commonly used in the data processing field.
6. A knowledge and understanding of operating problems and their solutions.
7. The ability to access a file, manipulate data, and print a report in a presentable format, through programming.
8. An understanding of the programming techniques used in problem solving.
9. A basic understanding of file processing techniques in data processing.

SPECIFIC BLOCK OBJECTIVES

BLOCK I - ORIENTATION

The student must be able to:

1. Explain orally or in writing the requirements of this course.
2. Demonstrate an understanding of the safety regulations he must observe by writing an explanation of each regulation.
3. Explain orally or in writing the student benefits to be derived from this course.

BLOCK II - COMPILER PROGRAMS

The student must be able to:

1. Explain orally or in writing the purpose of compiler programs.
2. Explain orally or in writing the correct use of the coding form.
3. Exhibit the ability to follow the correct procedure in compiler program operation.

BLOCK III - OPERATING SYSTEMS

The student must be able to:

1. Explain orally or in writing the purpose of operating systems.
2. Exhibit the ability to follow the correct procedure in computer system operation under operating system control.

BLOCK IV - COBOL

The student must be able to:

1. Explain orally or in writing the purpose of the Cobol programming language.
2. Explain orally or in writing the four divisions of Cobol.
3. Explain orally or in writing the language elements of Cobol.
4. Exhibit the ability to follow the correct procedure in the use of the Cobol coding form.

BLOCK V - QUINMESTER POST-TEST

The student must be able to:

1. Satisfactorily complete the quinmester post-test.

Course Outline

DATA PROCESSING TECHNOLOGY - 8025
(Software Systems II - Compiler and Operating Lab - Advanced)

Department 73 - Quin 8025.33

I. ORIENTATION

A. Objectives of the Course
   1. Requirements
   2. Methods of evaluation
   3. Teaching methods

B. Student Responsibilities
   1. Care of equipment
   2. Use of materials
   3. Safety regulations
   4. Class absences

C. Student Benefits
   1. Pride in self
   2. Individual development of skills
   3. Employability

II. COMPILER PROGRAMS

A. Functional Description of Compilers
   1. General
   2. Compiler languages

B. The Coding Form
   1. General
   2. Coding procedures and techniques

C. Operating Procedures
   1. General
   2. Magnetic tape compilers
   3. Disk compilers

III. OPERATING SYSTEMS

A. Functional Description of Operating Systems
   1. General
   2. Levels of operating systems

B. Operating System Sections
   1. Control program
   2. Processing programs

IV. COBOL

A. Introduction
   1. Development
   2. Goals

B. Cobol Divisions
   1. Identification division
   2. Environment division
   3. Data division
   4. Procedure division

C. Language Elements of Cobol
   1. Cobol reserved words
   2. Cobol names
   3. Literals
   4. Symbols
   5. Level numbers
   6. Pictures

D. Cobol Coding Form
   1. General
   2. Coding procedures and techniques

V. QUINMESTER POST-TEST

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BIBLIOGRAPHY

(Software Systems II - Compiler and Operating Systems Lab - Advanced)

Basic References:

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A P P E N D I X

Quinmester Post-Test Samples

Quinmester Post-Test

Name _____ Date _____ Score ____

I. Essay Questions - Briefly define or state the purpose of the following terms as they apply to Compiler Programs, Operating Systems, and the Cobol programming language.

1. The purpose of a Compiler Program is:

2. The purpose of an Operating System is:

3. What are Control Programs:

4. Define the three levels of operating systems:

5. The Identification Division is used:

6. The Environment Division is:

7. The Data Division is used:

8. The Procedure Division is:

9. How are Cobol reserved words used:

10. What is the purpose of Cobol names:

11. State the rules for numeric and nonnumeric literals:

12. Define the symbols illustrated:

+	_____	=	_____
-	_____	( )	_____
*	_____	,	_____
/	_____	;	_____
**	_____	.	_____

13. Define <u>level numbers</u>:

14. What is the purpose of <u>pictures</u>:

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Key for Post-Test

1. To translate the source program into the object or machine language program with the necessary subroutines.

2. To improve the total operating effectiveness of a computer by going from job to job automatically with a minimum of delay and operator intervention.

3. Control programs supervise the execution of the processing programs, control the location, storage, and retrieval of data, and schedule jobs for continuous processing.

4. Basic Operating System, Disk or Tape Operating System (DOS, TOS), and Operating System.

5. To specify the identification numbers, program name, and other pertinent information about the problem being solved.

6. The section in which the programmer describes for the Cobol compiler, the kind of machinery it has available for the compiling operation and for the running of the object program.

7. To describe the files from which the program will draw information for the calculations to be performed. The Data Division will also be used to describe working storage areas required and any constants needed.

8. Is the actual program which has been block diagrammed.

9. To identify sections of the program; identify or explain parts of entries; to identify a specific function; to indicate action to be taken; to represent actual values.

10. Are words made up by the programmer to identify data or procedures.

11. Numeric: up to 18 digits; decimals and - or + signs; signs to the left of the literal; decimals may be anywhere but the extreme right; unsigned literal will be positive. Nonnumeric: must be enclosed in single quotation marks; may contain any character available except quotation mark; may be as large as 120 characters.

12. + means addition - means subtraction *means multiplication / means division ** means exponentation = means make equal to ( ) encloses arithmetic segments , separates operands ; separates clauses . marks end of entry.

13. Give a picture of the size of basic fields and the relationship the smallest elements bear to other names for groups of data.

14. Convey to the compiler the size of the data field, the type of data, whether it is signed, and what editing must be done.